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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,862	07/24/2001	Tomoaki Kawada	HITA.0090	4055

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EXAMINER

LESPERANCE, JEAN E

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 04/09/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

PD

Office Action Summary

Application No.

09/910,862

Applicant(s)

KAWADA ET AL.

Examiner

Jean E Lesperance

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,9 and 15 is/are rejected.
- 7) ☒ Claim(s) 3-6,8,10-14 and 16-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claims 1-23 are presented for examination

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 7, 9, and 15 are rejected under U.S.C. 103 (a) as being unpatentable over U.S. Patent number 6,411,353 ("Yarita et al.") in view of U.S. Patent number 5,375,043 ("Tokunaga").

As for claim 1, Yarita et al. teach a simple matrix type LCD which uses a liquid crystal panel having a liquid crystal layer sandwiched between a pair of substrates each having a plurality of electrodes parallel with each other (column 1, lines 15-18) corresponding to a liquid crystal panel having a pair of substrates between which a liquid crystal layer is interposed; a backlight, disposed on the rear surface of the liquid crystal display element (column 3, lines 39-41) corresponding to a backlight being disposed at a rear surface side of the liquid crystal panel; and a liquid crystal display element is made in intimate contact with the upper surface of the light guide with optical sheets such as a light-diffusing sheet and a prismatic sheet interposed therebetween a diffusing sheet (column 9, lines 56-59) corresponding to a prism sheet lying between the

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rear surface of the liquid crystal panel and the backlight, wherein the backlight has a substantially rectangular-shaped light guide plate being formed of a transparent plate and the shield case SHD which holds and houses the liquid crystal display element ABS with the driver circuits is rigidly fixed to the mold case MCA which holds and houses the light guide GLB, cold cathode fluorescent lamp LP (column 14, lines 57-61) corresponding to a linear lamp being disposed along a incidence plane provided at one side of the light guide plate. Accordingly, Yarita et al. teach all the claimed limitations as recited in claim 1 with the exception of providing a light emission control pattern having a plurality of grooves.

However, Tokunaga teaches the LED's 2a to 2d are connected to the control means 10 by way of a light emission control circuit 16.

It would have been obvious for one of ordinary skill in the art to utilize the light control emission control as taught by Tokunaga in the liquid crystal display device disclosed by Yarita et al. because this would provide a light unit having a reduced size.

As for claims 2 and 9, Togunaga teaches the LED's are disposed not only in the side edges of the light guide plate but also in the direction of thickness thereof, a basic lighting for the light guide plate may be allotted to the LED's in the side edges, while the provision of contrast to the screen of the liquid crystal display may be allotted to the LED's extending in the direction of thickness and appropriately blinking, thereby ensuring a wide variety of display (column 4, lines 53-61) and the lighting unit comprises a light guide plat having one side fashioned into an uneven surface or a reflective surface (abstract) corresponding to the light guide plate has a wedge shaped cross

section thickness of which decreases as a distance from the incidence plane increases, and dot printing or roughening treatment is applied to the counter surface of the light guide plate to a light emitting surface thereof opposite to the liquid crystal panel for controlling optical intensity distribution on the light emitting surface.

As for claim 7, Yarita et al. teach PNL is a liquid crystal display element (fig.1) corresponding to a liquid crystal display panel; a backlight, disposed on the rear surface of the liquid crystal display element (column 3, lines 39-41) corresponding to a backlight being arranged opposite to one of main surfaces of the liquid crystal display panel; and a liquid crystal display element is made in intimate contact with the upper surface of the light guide with optical sheets such as a light-diffusing sheet and a prismatic sheet interposed therebetween (column 9, lines 56-59) corresponding to at least one optical sheet being arranged between the rear surface of the liquid crystal panel and the backlight, wherein the backlight has a light guide plate a main surface of which is opposite to the one of main surfaces of the liquid crystal display panel and a linear lamp being disposed along at least one side of the light guide plate.

As for claim 15, Yarita et al. a simple matrix type LCD which uses a liquid crystal panel having a liquid crystal layer sandwiched between a pair of substrates each having a plurality of electrodes parallel with each other (column 1, lines 15-18) corresponding to liquid crystal display panel having a pair of substrates between which a liquid crystal layer is interposed; the light-diffusing sheet SPS and prismatic sheet PRS can be more accurately aligned with the mold case MCA by inserting, on the side opposite to the line light source LP, the small holes provided in both the light-diffusing

sheet SPS and prismatic sheet PRS around the pin-like projections MPN integrally provided on the end portions of the above side of the mold case MCA (column 24, lines 14-20) corresponding to a light guide plate being disposed opposite to a main surface of one of the pair of substrates; and the reflecting sheet disposed on the underside of the light guide GLB and the mold case MCA for fixing the light guide GLB and liquid crystal display element PNL between the shield case SHD and mold case MCA by making use of the elasticity of the rubber cushion GC. While the rubber cushion GC is disposed along the periphery of the light guide GLB (column 22, lines 56-62) corresponding to at least one linear lamp being disposed along one of sides of the light guide plate, wherein the light guide plate has a pair of main surfaces one of which is opposite to the main surface of one of the pair of substrates.

Allowable Subject Matter

Claims 3-6, 8, 10-14, and 16-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: A liquid crystal display device wherein arrangement density of the grooves constituting the light emission control pattern are higher at an end side of the corner portion on the surface of the light guide plate; wherein the grooves are formed radially out from the end side of the corner portion; wherein the grooves are formed to be parallel to each other, and the arrangement density of the grooves is controlled by

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individual extension lengths thereof; wherein the grooves are formed to be parallel to each other, and the arrangement density of the grooves is controlled by altering respective arrangement intervals or individual depths of the grooves; wherein at least a part of an area at which the plurality of grooves are formed and at least a part of an area at which the fine dots are formed are overlapped with one another on the main surface of the light guide plate; wherein density of the plurality of grooves at an intermediate area located on the one of the pair of the main surfaces of the light guide plate between the both corner areas thereof is lower than those at the both corner areas thereof; wherein the one of the pair of main surfaces of the light guide plate has a pair of edges along the corner area thereof, one of which is extended along the one of the sides of the light guide plate, and the plurality of grooves intersect at least one of the pair of edges thereof; wherein extension lengths of the plurality of grooves from intersecting points thereof with the at least one of the pair of edges of the one of the pair of main surfaces of the light guide plate decrease as far as the intersecting points are spaced from a tip portion of the corner area; wherein density of the plurality of grooves decrease as far as intersecting points thereof with the at least one of the pair of edges are spaced from a tip portion of the corner area; and wherein the plurality of grooves are divided into at least two groups in accordance with intersecting angle thereof with the one of the sides of the light guide plate. The closest arts, Tokunaga and Yarita et al. as discussed above, either singularly or in combination, fail to teach or render the above limitations obvious.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean Lesperance whose telephone number is (703) 308-6413. The examiner can normally be reached on from Monday to Friday between 8:00AM and 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709 .

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Jean Lesperance



Date 4-5-2003

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RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

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